CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. R9-2016-0158

AN ORDER DIRECTING TE CONNECTIVITY INC., TYCO INTERNATIONAL (US) INC., ELECTRALAB PRINTED ELECTRONICS CORPORATION, AND SELF-REALIZATION FELLOWSHIP TO CLEAN UP AND ABATE THE EFFECTS OF WASTE DISCHARGED FROM THE FORMER ELECTRALAB FACILITY AT 1105 SECOND STREET, ENCINITAS, CALIFORNIA

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board), finds that:

1. **LEGAL AND REGULATORY AUTHORITY.** This Order conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (division 7, commencing with Water Code section 13000) including (1) sections 13267 and 13304; (2) applicable State and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*; Resolution No. 88-63, *Sources of Drinking Water*; Resolution No. 92-49, *Policies and Procedures for Investigation, and Cleanup and Abatement of Discharges under Water Code Section 13304*; California Code of Regulations (Cal. Code Regs.) title 23, chapter 16, article 11; Cal. Code Regs., title 23, section 3890 et seq.; and (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.

2. **DISCHARGE OF WASTES.** Between 1960 and 1972 a printed circuit board manufacturer operated at the property located at 1105 Second Street in Encinitas, California. During that time period, typical circuit board manufacturing processes used chlorinated solvents, particularly trichloroethene (TCE), for many cleaning operations. Because printed circuit boards were manufactured at the facility during that time period, TCE likely was used in facility operations. TE Connectivity Inc. is investigating the possible use of TCE by subsequent property owners, as well as the possible contribution of off-site sources. TCE and other dechlorination byproducts have been detected in groundwater samples collected at and downgradient of the property since at least 2006. TCE and degradation products of TCE, as well as 1,1,1-trichloroethane, 1,4-dioxane, ethylbenzene, and xylenes, are typical byproducts of electronics manufacturing and other manufacturing processes that have historically been disposed of as waste, as defined in Water Code section 13050 (d). Groundwater monitoring results from a nearby property

indicate the presence of TCE and other wastes in groundwater at concentrations shown in the table below.

Constituent	Maximum Historical Groundwater Concentration (µg/L)	Most Recent (2011) Groundwater Concentration (µg/L)
TCE	92,000	65,000
1,1-DCE	17,000	8,300
Cis-1,2-DCE	42	38
Trans-1,2-DCE	12	8.6
Vinyl chloride	2.2	1.7

DCE = dichloroethene
TCE = trichloroethene
µg/L = micrograms per liter

TCE, TCE dechlorination byproducts, and other volatile organic compounds (VOCs) also have been detected in sub-slab soil vapor, subsurface soil vapor, and indoor air samples collected from beneath and inside a building overlying a portion of the groundwater plume at concentrations that indicate a risk to human health due to vapor intrusion. The maximum concentrations of TCE and other wastes detected in samples of soil vapor and indoor air are shown in the table below.

	Maximum Concentration (µg/m^3)					
	Subsurface Soil Vapor		Sub-slab Soil Vapor		Indoor Air[1]	
Constituent	Value	SL[2]	Value	SL[2]	Value	SL[2]
TCE	2,600,000	3,000	570,000	60	250	3.0
1,1-DCE	210,000	310,000	41,000	6,200	19	310
Cis-1,2-DCE	13,000	35,000	5,800	700	1.2	35
PCE	4,400	2,100	4,500	42	0.40	2.1

[1] Indoor air concentrations are representative of conditions prior to implementing interim actions consisting of temporary modifications to the heating, ventilation, and air conditioning (HVAC) system, which has helped ventilate the building and has resulted in lower indoor air concentrations.
[2] Screening levels for subsurface soil vapor and sub-slab soil vapor are estimated by dividing the corresponding indoor air screening level by a DTSC-recommended attenuation factor (0.001 for subsurface soil vapor and 0.05 for sub-slab soil vapor).[1] Indoor air screening levels are from DTSC HERO HHRA Note 3 (January 2016).

DTSC = Department of Toxic Substances Control
HERO = Human and Ecological Risk Office
HHRA = Human Health Risk Assessment
ND = not detected
SL = commercial/industrial screening level (residential SLs are lower)
µg/m^3 = micrograms per cubic meter

[1] DTSC. 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

Additional work is needed to provide information on the following:

- Crawl space air concentrations at residential cottages located south of the main facility building (confirmation sampling)
- Extent of soil vapor impacts on and off site
- Source area identification and delineation
- Extent of groundwater impacts
- Human health risk assessment

3. **PERSONS PRIMARILY RESPONSIBLE FOR THE DISCHARGE OF WASTE.** TE Connectivity Inc., Tyco International (US) Inc., and Electralab Printed Electronics Corporation (EPEC) (collectively, Dischargers) are primarily responsible for discharges of wastes to the subsurface at the site. Various waste constituents originated at the former Electralab facility located at 1105 Second Street and were discharged to the subsurface where they cause or threaten to cause a condition of pollution or nuisance. The Dischargers, by failing to clean up waste or control the discharge, have caused or permitted waste to be discharged in such a manner that has created a condition of nuisance. The term discharge includes the active (intentional and/or unintentional) initial release as well as passive migration of waste.[2]

   a. **Electralab Printed Electronics Corporation.** Electralab Printed Electronics Corporation (EPEC) owned the property located at 1105 Second Street and operated the printed circuit board manufacturing business from at least 1960 through about 1962, at which point Electralab Electronics Corporation (EEC) acquired the assets of EPEC and became the successor corporation to EPEC, Western Division. EEC acquired the property from EPEC in 1965.

   b. **Tyco International (US) Inc. and TE Connectivity Inc.** The assets of EEC were acquired by Tyco Laboratories Inc. in 1968, which continued to manufacture printed circuit boards at the property through about 1972. The property also was transferred to Tyco Laboratories Inc. in 1968. Tyco Laboratories Inc. went through a series of mergers and name changes to ultimately become Tyco International (US) Inc., and then TE Connectivity Inc., a Nevada Corporation.

4. **PERSONS SECONDARILY RESPONSIBLE FOR THE DISCHARGE OF WASTE.** Self-Realization Fellowship (SRF) is the current owner of 1105 Second Street, having acquired the property in 1995, and is considered a discharger secondarily liable for cleanup and abatement of waste and pollution in the case that TE Connectivity Inc., or another identified primary discharger, fails to comply with the requirements of this Cleanup and Abatement Order (CAO).

[2]State Water Board Order WQ 86-2 (*Zoecon*) found that the discharge of waste includes the passive migration of waste, and that the owner of a contaminated site causes or permits a discharge even if the owner did not own the property at the time of the initial release.

The San Diego Water Board will not require SRF to clean up or abate waste discharges as long as the following conditions are met:

a. SRF does not exacerbate or contribute to the existing discharge of wastes.

b. SRF site operations will not result in health risks to persons on the site.

c. SRF allows access to, and does not interfere with, remedial activities at any of the properties it owns or controls on the block on which the 1105 Second Street building is located.

d. Other viable primary Dischargers are available to conduct any necessary remediation.

e. SRF, as current property owner, is responsible for implementing notification procedures required by the San Diego Water Board.

5. **SITE LOCATION.** The site is located within the Batiquitos Hydrologic Subarea (904.51) in the San Marcos Hydrologic Area (904.50) of the Carlsbad Hydrologic Unit (904.00). The Basin Plan does not designate any beneficial uses for groundwater in the Batiquitos Hydrologic Subarea.

6. **HUMAN HEALTH IMPAIRMENT.** TCE, TCE dechlorination byproducts, and other VOCs can pose a human health risk through the vapor intrusion pathway. Other chemicals, including 1,1,1-trichloroethane, 1,4-dioxane, ethylbenzene, and xylenes, are also known to be used in printed circuit board manufacturing and other manufacturing processes. These chemicals have long-term cancer risks as well as short-term non-cancer hazards. TCE is known to cause cancer in humans. Some toxicological information suggests that TCE is of concern for sensitive and vulnerable populations, particularly women of reproductive age, and poses a short-term risk for non-cancer effects.

7. **CONDITION OF NUISANCE.** Nuisance, as defined in Water Code section 13050 (m), is anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and (3) occurs during, or as a result of, the treatment or disposal of wastes. The concentrations of TCE and its byproducts constitute a nuisance because they may pose a health risk to people that work or live in buildings overlying the groundwater plume.

8. **BASIS FOR CLEANUP AND ABATEMENT ORDER.** Water Code section 13304 contains the authority for the San Diego Water Board to require cleanup and/or abatement of the effects of pollution caused by discharges of wastes. Water Code

section 13304 requires a person to clean up waste or abate the effects of the waste discharge if so ordered by a regional water board in the event there has been a discharge in violation of waste discharge requirements, or if a person has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates or threatens to create a condition of pollution or nuisance. Therefore, based on the findings in this CAO the Board is authorized to order the Dischargers identified in Finding 3 to clean up and/or abate the effects of the waste discharged.

9. **BASIS FOR REQUIRING TECHNICAL AND MONITORING REPORTS.** Water Code section 13267 provides that the San Diego Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

10. **NEED FOR AND BENEFIT OF TECHNICAL AND MONITORING REPORTS.** Technical reports and monitoring reports are needed to provide information to the San Diego Water Board regarding (a) the nature and extent of the discharge, (b) the nature and extent of nuisance conditions in State waters created by the discharge, (c) the vapor risk to human health as a result of the discharge, and (d) appropriate cleanup and abatement measures capable of meeting cleanup levels consistent with State Water Board Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304*. The reports will enable the Board to determine the vertical and lateral extents of the discharge, and provide technical information to determine what cleanup and abatement measures are necessary to bring the site into compliance with Water Code section 13050 (m) and be protective of human health. Based on the nature and possible consequences of the discharge (as described in the Findings above), the burden of providing the required reports, including the costs, bears a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports.

11. **CLEANUP LEVELS.** Water Code section 13304 requires that a person who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into State waters and creates, or threatens to create a condition of pollution or nuisance, shall, upon order of the regional water board, clean up the waste or abate the effects of the waste or, in the case of threatened nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. Section 2550.4 of Cal. Code Regs. title 23, chapter 15 (made applicable to this site by section 2550.0 (a) and by State Water Board Resolution No. 92-49), requires that cleanup levels be proposed for each affected medium, which includes groundwater, soil, soil vapor, and indoor air. Levels shall be set so as to not pose a substantial present or potential future hazard to human health.

12. **CALIFORNIA ENVIRONMENTAL QUALITY ACT COMPLIANCE.** The issuance of this CAO is an enforcement action taken by a regulatory agency and is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321(a)(2), chapter 3, title 14 of Cal. Code Regs.

    If the San Diego Water Board later determines that work proposed in the Remedial Action Plan may have a significant effect on the environment, the Board will prepare and adopt an appropriate environmental document prior to approving the Remedial Action Plan in compliance with CEQA.

13. **PUBLIC NOTICE.** The San Diego Water Board has notified all known interested persons and the public of its intent to adopt the CAO, and has provided them with an opportunity to submit written comments, evidence, testimony, and recommendations.

14. **COST RECOVERY.** Pursuant to Water Code section 13304 (c), and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this or a subsequent Order.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13267 and 13304, the Dischargers shall comply with the following directives:

A. **PRIMARY DISCHARGERS' RESPONSIBILITY.** The Dischargers named in Finding 3 of the CAO shall be responsible for complying with the Directives in the CAO except for items that are specifically assigned to SRF. The San Diego Water Board will not require SRF to comply with the Directives as long as the conditions listed in Finding 4 are met, with the exception of items specifically assigned to SRF in the directives that follow.

B. **CLEAN UP AND ABATE THE EFFECTS OF WASTE DISCHARGES.** The Dischargers shall take all corrective actions necessary to clean up and abate the contaminated soil, groundwater, soil vapor, and indoor air at the site to levels that are protective of human health.

C. **SITE INVESTIGATION WORK PLAN.** The Dischargers shall submit a complete Site Investigation Work Plan (Work Plan) that describes collection and analysis of sub-slab (including crawl space) and subsurface soil vapor samples, as well as soil and groundwater samples, to identify and delineate the source area and fully evaluate the risk from vapor intrusion. The Work Plan shall be designed to answer the following questions:

- What is the source of each waste constituent?
- What is the extent of each waste constituent in soil vapor, soil, and groundwater?
- How does contaminated groundwater contribute to the presence of vapors in soil and indoor air?
- Do vapors originating from soil and groundwater contribute to an unacceptable risk to human health through inhalation of indoor air (both on and off the property)?

The scope of activities in the Work Plan shall provide sufficient data to delineate the extent of the discharge to soil vapor, soil, and groundwater; identify and delineate the source area; assess the risk to human health from vapor intrusion; and develop an effective remediation approach. The Work Plan must be received by the San Diego Water Board no later than **60 calendar days after CAO adoption** and shall contain, at a minimum, the following information:

1. **Summary of Previous Environmental Investigations and Historical Data.** The Work Plan shall include a summary, including data tables and figures, of previously conducted environmental investigations.

2. **Sampling and Analysis Plan.** The Work Plan shall include a Sampling and Analysis Plan that describes the proposed sampling methodologies, analytical methods, sampling locations, and quality assurance/quality control (QA/QC) procedures to be followed. Soil vapor samples shall be collected beneath, adjacent to, and outside of building footprints in upgradient, cross-gradient, and downgradient directions, as appropriate. A minimum of three sub-slab sampling locations per building or approximately one sample per 400 square feet of floor space is recommended to provide adequate delineation within structures. Samples shall be collected at multiple depths to provide information on vertical distribution of contaminants. Refer to the October 2011 *Vapor Intrusion Guidance*[3] and the July 2015 *Advisory – Active Soil Gas Investigations*[4] for guidance on developing the soil vapor portion of the sampling and analysis program. The *Vapor Intrusion Guidance* recommends vertical soil vapor delineation, especially in the source area, if data are to be used for preliminary vapor intrusion screening. The Guidance also recommends the use of permanent sampling points so that repeated sampling can be conducted, as necessary, to evaluate seasonal or temporal variations in soil vapor concentrations. Groundwater samples shall be collected at sufficient locations to characterize the lateral and vertical extents of waste discharge downgradient. Soil samples shall be collected at sufficient locations to characterize the source zone and identify any preferential pathways for contaminant migration. Sampling shall not proceed without written concurrence from the San Diego Water Board. Contingencies for collection of additional samples shall be proposed in the Work Plan. All samples shall be tested for analytes needed to characterize the affected media (i.e., full suite of VOCs plus 1,4-dioxane).

3. **Conceptual Site Model.** The Work Plan shall include a preliminary conceptual site model (CSM) that provides a conceptual understanding of the potential for exposure to site contaminants based on sources of contamination, release mechanisms, transport media, exposure pathways, and potential receptors. The CSM also shall identify data gaps and provide a framework that justifies the proposed sampling program (i.e., number, location, and frequency of samples).

4. **Description of Methodology for Screening-level Human Health Risk Assessment.** The Work Plan shall include a description of the methodology to be used to conduct a human health risk assessment (HHRA). A description of the data screening process, including the screening numbers proposed to be used, as well as rationale for selection of the screening numbers, shall be included. The data to be collected in support of the HHRA shall be described

[3] Department of Toxic Substances Control. 2011. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

[4] Department of Toxic Substances Control, Los Angeles Water Board, and San Francisco Bay Water Board. 2015. Advisory – Active Soil Gas Investigations. July.

and a description of the risk model to be used as part of the HHRA shall be described, as appropriate.

5. **Activity Completion Schedule.** The Work Plan shall include a schedule for completion of all activities and for submission of a Site Investigation Report as described below. The San Diego Water Board recognizes that work plan addenda and supplementary investigations and monitoring may be required to further characterize the site and evaluate remedial alternatives.

D. **SITE INVESTIGATION REPORT.** The Dischargers shall submit a Site Investigation Report (Report) describing and interpreting the results from implementation of the Work Plan. The Report must be received by the San Diego Water Board no later than **120 calendar days after Work Plan approval** and shall contain, at a minimum, the following information:

1. **Source Characterization.** The Report shall characterize all potential on-site sources of waste discharges to soil, groundwater, and soil vapor. At a minimum, the Report shall include a discussion of historical records of operations, site reconnaissance, and previous sampling studies. The information in the technical report shall provide an adequate basis for selecting effective cleanup and abatement actions to address the identified source(s) of pollution.

2. **Geologic Characterization.** The Report shall characterize subsurface geology, hydrogeology, and all preferential pathways that may affect groundwater and soil vapor flow and contaminant migration.

3. **Groundwater Flow Characterization.** The Report shall describe the rate(s) and direction(s) of local groundwater flow, in the horizontal and vertical dimensions, for all water-bearing units potentially affected by the waste constituent(s) that were discharged at the site.

4. **Delineation of Discharge.** The Report shall provide an adequate characterization of the extents of soil vapor, soil, and groundwater contamination at and around the site. The Report shall provide characterization of the extents of the waste discharges downgradient of the property adequate to determine the locations of and need for remedial measures downgradient of the source zone.

5. **Field Methodologies.** The Report shall describe the field methodologies used for soil vapor sampling, soil sampling, groundwater sampling, and any other field sampling-related activities, including drilling and soil logging. Selected methods for purging and sampling monitoring wells and/or borings shall be capable of providing representative samples of groundwater for detecting all of the waste constituents.

6. **Laboratory Analyses.** The Report shall present results of all analyses

performed including laboratory analytical methods and QA/QC sample results. The suite of chemical analyses, methods, and protocols must be adequate to quantitatively identify and characterize the full range of site-specific waste constituents. Geotechnical analytical results shall be reported if site-specific physical property data were collected for input to the HHRA. All sampling data shall be presented in tabular format that includes the sample location, result, depth, and sampling date.

7. **Sample Locations and Number.** The Report shall describe the locations and number of samples collected, and include a map showing sample locations.

8. **Conceptual Site Model.** The Report shall include an updated CSM that provides a conceptual understanding of the potential for exposure to site contaminants based on sources of contamination, release mechanisms, transport media, exposure pathways, and potential receptors. The CSM also shall identify any additional data gaps and include a discussion of the level of uncertainty for the conclusions.

9. **Human Health Risk Assessment.** The Report shall include a screening-level HHRA performed using modeling software. The model input, assumptions, and results shall be described in the Report.

10. **Conclusions and Recommendations.** The Report shall include conclusions based on the results of the soil vapor, soil, and groundwater sampling and the HHRA and provide recommendations for additional work, if needed, as well as the need for remedial measures and a schedule for implementation.

E. **FEASIBILITY STUDY.** The Dischargers shall prepare a Feasibility Study to evaluate cleanup alternatives capable of preventing contaminant migration and protecting human health. The Dischargers shall submit the Feasibility Study to the San Diego Water Board for approval no later than **90 calendar days after approval of the Site Investigation Report**. The Feasibility Study shall include, but is not limited to, the following:

1. An evaluation of the technical and economic feasibility of cleaning up soil, groundwater, and soil vapor to levels that are protective of human health.

2. An evaluation of remedial alternatives capable of effectively cleaning up soil, groundwater, and soil vapor to levels that are protective of human health.

3. An evaluation of the cost and effectiveness of each alternative for the remediation of the waste constituents to attain level protective of human health approved by the San Diego Water Board.

4. A recommended remedial alternative(s) for the cleanup and/or abatement of discharged wastes. The recommended alternative(s) must be capable of

achieving the proposed cleanup levels for all waste constituents at all monitoring points and throughout the zones affected by the waste constituents.

F. **INTERIM REMEDIAL ACTIONS.** Interim remedial measures (e.g., increased HVAC system circulation, use of blowers/air purifiers, and sub-slab depressurization, as appropriate) shall be installed and maintained, as needed to minimize short-term risk to human health from TCE exposure, pending installation of a permanent remediation system.

When the Dischargers and/or SRF become aware of a short-term risk to human health from TCE exposure, the Dischargers shall, with the cooperation of and coordination with SRF, begin implementation of interim remedial actions within the timeframes listed in the table below, or as soon as practicable.[5]

Response Action Level	Indoor Air Concentration of TCE		Interim Action Timeframe
	Residential Scenario	Commercial/ Industrial Scenario[1]	
Accelerated	2 µg/m^3	8 µg/m^3	2 weeks
Urgent	6 µg/m^3	24 µg/m^3	7 days

[1] Commercial/industrial scenario is for an 8-hour workday.

Implementation of interim measures does not preclude the need for the development and implementation of permanent remediation system to address long-term risk to human health from TCE and other site contaminants.

G. **NOTIFICATION PLAN.** The Dischargers shall prepare and submit a Notification Plan to the San Diego Water Board for review and approval no later than **60 calendar days after CAO adoption**. The Notification Plan shall describe activities to be conducted to provide notification of exposure to contaminants in the indoor air of structures affected by the waste discharge described in this CAO to people that may occupy those structures. Notification shall be consistent with California Proposition 65,[6] which requires businesses to provide “clear and reasonable” warning before knowingly and intentionally exposing anyone to a listed chemical unless the business can show that the anticipated exposure level will not pose a significant risk of cancer or is significantly below levels observed to cause birth defects or other reproductive harm. The Dischargers shall, with the cooperation of and coordination with SRF, implement the notification procedures described in the Notification Plan upon approval of the Plan by the Board.

[5] DTSC. 2014. Human and Ecological Risk Office Human Health Risk Assessment (HHRA) Note No. 5: Health-based Indoor Air Screening Criteria for Trichloroethylene (TCE). August 23.

[6] http://oehha.ca.gov/proposition-65/businesses-and-proposition-65.

H. REMEDIAL ACTION PLAN AND IMPLEMENTATION.

1. **Remedial Action Plan.** The Dischargers shall prepare and submit a Remedial Action Plan (RAP) to the San Diego Water Board for approval no later than **90 calendar days after Board approval of the Feasibility Study**. The RAP shall describe the activities needed to clean up discharges of waste at the site to levels that are protective of human health. At a minimum, the RAP shall contain the following information:

    a. **Introduction.** A brief description of the site and site history.

    b. **Selected Remedy.** A detailed description of all of the remedial activities selected to attain the proposed cleanup levels for chlorinated solvents and other wastes.

    c. **Health and Safety Plan.** A Health and Safety Plan that includes employee training requirements, a list of personal protective equipment for each task, medical surveillance requirements, standard operating procedures, and contingency plans.

    d. **Community Relations Plan.** A Community Relations Plan for informing the public about (i) activities related to the final remedial design, (ii) the schedule for the remedial action, (iii) the activities to be expected during construction and remediation, (iv) provisions for responding to emergency releases and spills during remediation, and (v) any potential inconveniences such as excess traffic and noise that may affect the community during the remedial action.

    e. **Quality Assurance Project Plan.** A Quality Assurance Project Plan (QAPP) that describes the project objectives and organization, functional activities, and QA/QC protocols as they relate to the remedial action.

    f. **Sampling and Analysis Plan.** A SAP that defines (i) sample and data collection methods to be used for the project, (ii) a description of the media and parameters to be monitored or sampled during the remedial action, and (iii) a description of the analytical methods to be used and an appropriate reference for each.

    g. **Evaluation of Environmental Impacts.** An evaluation of the potential environmental impacts of implementing the RAP based on the environmental factors in the CEQA checklist. The evaluation must identify levels of significance for environmental impacts, propose mitigation to lessen environmental impacts to less-than-significant levels, and be adequate to allow the San Diego Water Board to prepare a CEQA Initial Study and an appropriate CEQA document for the RAP.

h. **Wastes Generated.** A description of the plans for management, treatment, storage, and disposal of all wastes generated by the remedial action.

i. **Pre-Remedial Studies Workplan.** A workplan for any Pre-Remedial Studies or for the collection of any data needed to optimize the remedial design.

j. **Design Criteria Report.** A Design Criteria Report that defines in detail the technical parameters upon which the remedial design will be based. Specifically, the Design Criteria Report shall include preliminary design assumptions and parameters, including (i) waste characterization; (ii) volume and types of each medium requiring removal or containment; (iii) removal or containment methods; (iv) required qualities of waste streams (e.g., potential air emissions); (v) performance standards; and (vi) technical factors of importance to the design, construction, and implementation of the selected remedy including use of currently accepted environmental control measures, constructability of the design, and use of currently acceptable construction practices and techniques.

k. **Equipment, Services, and Utilities.** A list of any elements or components of the selected remedial action that will require custom fabrication or long lead-time for procurement. The list shall state the basis for such need and the recognized sources of such procurement.

l. **Regulatory Permits and Approvals.** A list of required federal, State, and local permits and approvals needed to conduct the remedial action.

m. **Remediation Monitoring Plan.** A Remediation Monitoring Plan consisting of (i) water quality monitoring, (ii) soil vapor monitoring, and (iii) disposal monitoring.

n. **Site Map.** A site map showing the location of buildings, roads, property boundaries, remedial equipment locations, staging areas, and other information pertinent to the remedial action.

o. **Contingencies.** A description of any additional items necessary to implement the RAP.

p. **Remediation Schedule.** A schedule detailing the sequence of events and activities, and the timeframe for each event and activity based on the shortest practicable time required to complete each activity. Any and all proposed time frames and completion dates are subject to review and revision by the San Diego Water Board.

2. **RAP Implementation.** The Dischargers shall begin implementation of the RAP **60 calendar days after San Diego Water Board approval of the RAP**, unless otherwise directed in writing by the Board. The Dischargers shall carry out the activities in the RAP according to the schedule in the RAP. Before beginning RAP implementation activities, the Dischargers shall:

   a. Notify the Board of the intention to begin cleanup in accordance with Provision L.10.

   b. Comply with any conditions set by the Board, including mitigation of adverse consequences from cleanup activities.

   The Dischargers shall modify or suspend cleanup activities when directed to do so by the Board.

I. **CLEANUP AND ABATEMENT COMPLETION VERIFICATION.**
The Dischargers shall verify, through the submission of a **Cleanup and Abatement Completion Report,** that all RAP activities for the site have been completed as described in the approved RAP. The report must be received by the San Diego Water Board **within 90 calendar days after completion of the last remedial event or activity on the Remediation Schedule in the RAP**.

J. **POST-REMEDIAL MONITORING.**

Post-remedial monitoring shall be performed to demonstrate that the cleanup levels in the approved RAP have been achieved. The Dischargers shall prepare and provide written **Semiannual Progress Reports** that:

- Describe the sample and data collection methods used for post-remedial monitoring.
- Describe the QA/QC protocols that were followed during sample and data collection activities.
- Describe the analytical methods used for analysis of samples.
- Describe operation effectiveness and maintenance of the mitigation system(s) that were installed at the site as part of Directive G.2.
- Include all results of sampling and tests, and all other verified or validated data received or generated by or on behalf of the Dischargers during the previous monitoring period.
- Evaluate and interpret monitoring data.
- Analyze whether or not cleanup levels have been attained.
- Show the locations, type, and number of samples on a site map.
- Describe all activities, including data collection and other field activities, that are scheduled for the next monitoring period, and provide other information relating to the progress of work, including, but not limited to, a graphical depiction of the progress of the remedial actions (e.g., concentration vs. time plots).

- Identify any modifications to the RAP or other work plan(s) that the Dischargers submitted to the San Diego Water Board or that have been approved by the Board during the previous monitoring period.
- Include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the events and activities in the RAP, and a description of all efforts made to mitigate those delays or anticipated delays.

The Dischargers shall submit the semiannual progress reports to the San Diego Water Board by the **15th day of March and the 15th day of September of each year following the completion of the last remedial event or activity on the Remediation Schedule in the RAP**. Submission of progress reports shall continue until the San Diego Water Board determines that no further action is required by the Dischargers.

K. **VIOLATION REPORTS.** If the Dischargers violate any requirement of the CAO, then the Dischargers must notify the San Diego Water Board office by telephone and electronic mail as soon as practicable once the Dischargers have knowledge of the violation. The Board may, depending on the severity of the violation, require the Dischargers to submit a separate technical report addressing the violation within five working days of notification. In addition, a violation may subject the Dischargers to a future enforcement action.

L. **COMPLIANCE DATES.** For easy reference, the compliance dates required by the CAO are repeated below.

Directive	Directive Requirement	Due Date
C	Site Investigation Work Plan	60 calendar days after CAO adoption
D	Site Investigation Report	120 calendar days after Work Plan approval
E	Feasibility Study	90 calendar days after Site Investigation Report approval
G	Notification Plan	Within 60 days of CAO adoption
H.1	Remedial Action Plan	Within 90 calendar days of Board approval of Feasibility Study
H.2	RAP Implementation	60 calendar days after RAP approval
I	Cleanup and Abatement Completion Report	Within 90 calendar days of completion of remediation
J	Semiannual Progress Reports	March 15 and September 15 of each year following completion of remediation

M. **PROVISIONS.**

1. **Waste Management.** The Dischargers shall properly manage, store, treat, and dispose of contaminated investigation-derived waste in accordance with applicable federal, State, and local laws and regulations. The storage, handling, treatment, or disposal of soil and groundwater associated with site assessments must not create conditions of nuisance as defined in Water Code section 13050 (m).

2. **Preliminary Information.** The Dischargers may present data, preliminary interpretations, and preliminary conclusions to the San Diego Water Board as it becomes available, rather than holding this information until a final report is prepared. This type of ongoing reporting is encouraged to facilitate and expedite Board approval of reports required by the CAO.

3. **Duty to Use Registered Professionals.** The Dischargers shall provide documentation that plans and reports required under the CAO are prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals. A statement of qualifications and license numbers of the responsible lead professionals shall be provided to the San Diego Water Board upon request. The lead professional shall sign and affix their license stamp to all reports, plans, and documents.

4. **Laboratory Qualifications.** All samples must be analyzed by Environmental Laboratory Accreditation Program-certified laboratories using methods approved by the U.S. Environmental Protection Agency (USEPA) for the type of analysis to be performed.

5. **Laboratory Analytical Reports.** Any report presenting new analytical data is required to include the complete laboratory analytical report(s). The laboratory analytical report(s) must be signed by the laboratory director and contain:

    a. Complete sample analytical reports.

    b. Complete laboratory QA/QC reports.

    c. A discussion of the sample and QA/QC data.

    d. A transmittal letter that indicates whether or not all the analytical work was supervised by the director of the laboratory, and contains the following statement: “All analyses were conducted at a laboratory certified for such analyses by the Environmental Laboratory Accreditation Program in accordance with current USEPA procedures.”

6. **Reporting of Changed Owner or Operator.** SRF must notify the San Diego Water Board of any changes in site occupancy or ownership associated with the property described in this Order within 30 days of the change.

7. **Duty to Operate and Maintain.** The Dischargers shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal, and monitoring (and related appurtenances) that are installed or used by the Dischargers to achieve compliance with the CAO, with the cooperation of and coordination with SRF. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which would be installed by the Dischargers only when the operation is necessary to achieve compliance the conditions of the CAO.

8. **Amendment.** The CAO in no way limits the authority of the San Diego Water Board to require additional investigation and cleanup consistent with the Water Code. The Board may revise the CAO as additional information becomes available.

9. **Time Extensions.** If, for any reason, the Dischargers are unable to perform any activity or submit any documentation in compliance with requirements in the CAO, the Dischargers may request, in writing, an extension of time. The written extension request shall include justification for the delay and shall be sent to the San Diego Water Board reasonably (within 14 calendar days) in advance of the deadline sought to be extended. An extension may be granted for good cause, in which case the CAO will be accordingly amended.

10. **Field Work Notice.** The Dischargers shall give the San Diego Water Board advance notice of 14 days of all field work or field activities to be performed by the Dischargers pursuant to the CAO. If 14 days advance notice is not reasonably possible for the Dischargers to provide, the Dischargers shall provide notice to the Board of all such field work or activities as far in advance of such work as is reasonably possible. In any event, any notification pursuant to this Provision shall be given at least 24 hours prior to the given field activities, unless the Board agrees otherwise.

11. **Community Relations.** The Dischargers and/or SRF shall cooperate with the San Diego Water Board in providing information regarding site remediation to the public. If requested by the Board, the Dischargers and/or SRF shall participate in the preparation of such information for distribution to the public and in public meetings that may be held or sponsored by the Board to explain activities at the site or relating to this cleanup.

12. **Corporate Signatory Requirements.** All reports required under the CAO shall be signed and certified by a responsible corporate officer of the Dischargers described in paragraph (a) of this provision or by a duly

authorized representative of that person as described in paragraph (b) of this provision.

a. **Responsible Corporate Officer(s).** For the purposes of this provision, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. **Duly Authorized Representative.** A person is a duly authorized representative only if:

   i. The authorization is made in writing by a person described in paragraph (a) of this provision.

   ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

   iii. The written authorization is submitted to the San Diego Water Board.

c. **Changes to Authorization.** If an authorization under paragraph (b) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or for any activity, a new authorization satisfying the requirements of paragraph (b) of this provision shall be submitted to the San Diego Water Board prior to or together with any reports or information to be signed by an authorized representative.

d. **Penalty of Perjury Statement.** All reports shall be signed by the Dischargers' corporate officers or their duly authorized

representative(s), and shall include the following statement by the official(s), under penalty of perjury, that the report is true and correct to the best of the official(s)' knowledge:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. **Duty to Submit Other Information.** When the Dischargers become aware that they failed to submit any relevant facts in any submittal required under the CAO, or submitted incorrect information in any such report, the Dischargers shall promptly submit in writing such facts or information to the San Diego Water Board.

14. **Document Submittals.** All documents prepared in compliance with the CAO shall be submitted to the San Diego Water Board via the Geotracker database. The Board may also request hard copies and/or electronic copies on a CD or other appropriate media, including electronic mail (email).

    a. **Geotracker Database.** The Dischargers shall submit all documents electronically to the Geotracker database located at:

       https://geotracker.waterboards.ca.gov/esi

       The Electronic Reporting Regulations require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005. The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the Order or addenda thereto. Upon receipt of the documents, the San Diego Water Board shall use the email date and time to determine compliance with the regulatory due dates specified in this Order. Note the following regarding email document submittals:

       i. Addressee. All documents shall include the following addressee information on the cover letter and/or document title page unless otherwise directed by the Executive Officer:

Executive Officer
California Regional Water Quality Control Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, California 92108-2700
Attn: Ms. Sarah Mearon

ii. Geotracker Global ID. All documents submitted to the San Diego Water Board shall include the following Geotracker Global ID in the header or subject line: **T10000006820**.

iii. Document Size. Documents larger than 100 megabytes (MB) shall be divided into separate files at logical places in the report to keep the file sizes under 100 MB.

To comply with these requirements, the Dischargers shall upload all documents, including the following minimum information, to the Geotracker database:

i. Laboratory Analytical Data. Analytical data (including geochemical data) for all soil, groundwater, soil vapor, and indoor air samples in Electronic Deliverable Format (EDF).

ii. Locational Data. The latitude and longitude of all permanent sampling locations for which data are reported in EDF.

iii. Site Map. The site map shall be a stand-alone document and can be submitted in various electronic formats. An updated site map may be uploaded at any time.

b. **Hard Copies and CDs.** If requested by the San Diego Water Board, the Dischargers shall also provide any or all of the following to the Board: a hard copy of the complete document, a hard copy of the cover/transmittal letter, a hard copy of oversized drawings or maps, and an electronic copy (on a CD or other appropriate media) of the complete document.

c. **Electronic Mail.** If requested by the San Diego Water Board, the Dischargers shall also submit a complete copy (in a text-searchable PDF file) of all documents including signed transmittal letters, professional certifications, and all data presented in the documents to:

sandiego@waterboards.ca.gov

Upon receipt of the documents, the Board shall use the email date and time to determine compliance with the regulatory due dates specified in this Order.

N. **NOTIFICATIONS.**

a. **Cost Recovery.** Upon receipt of invoices, and in accordance with instruction therein, the Dischargers must reimburse the San Diego Water Board for all reasonable costs incurred by the Board to investigate discharge of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order and consistent with the estimation of work.

b. **All Applicable Permits.** This Order does not relieve the Dischargers of the responsibility to obtain permits or other entitlements to perform necessary assessment activities. This includes, but is not limited to actions that are subject to local, State, and/or federal discretionary review and permitting.

c. **Enforcement Discretion.** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.

d. **Enforcement Notification.** Failure to comply with requirements of this Order may subject the Dischargers to enforcement action, including but not limited to administrative enforcement orders requiring the Dischargers to cease and desist from violations, imposition of administrative civil liability pursuant to Water Code section 13268 in an amount not to exceed $1,000 for each day in which the violation occurs, referral to the State Attorney General for injunctive relief, and referral to the District Attorney for criminal prosecution. The Dischargers are severally liable for the entire amount of the administrative civil liability. The San Diego Water Board reserves the right to seek administrative civil liability from the Dischargers.

e. **Requesting Administrative Review by the State Water Board.** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with section 13320 of the Water Code and Cal. Code Regs. title 23, section 2050. The petition must be received by the State Water Board, Office of Chief Counsel, within **30 calendar days** of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.[7]

[7] Nothing in this Order prevents the Dischargers or SRF from later petitioning the State Water Resources Control Board to review other future San Diego Water Board orders regarding the Former Electralab Facility, including but not limited to subsequent investigative orders and/or cleanup or abatement orders, if any. Upon such petition, the Board will not assert that the Dischargers or SRF have previously waived or forfeited their right to petition the Board's action or failure to act under Water Code section 13320. Further, upon such petition, the Board will not assert that the Dischargers or SRF are precluded from petitioning for review of future orders by any failure to petition for review of this Order.

This CAO is effective upon the date of signature.

ORDERED BY

_____ _____

DAVID W. GIBSON DATE
Executive Officer